A STUDY OF THE CRETACEOUS-TERTIARY CONTACT IN BASTROP AND TRAVIS COUNTIES, TEXAS, SOUTH OF THE COLORADO RIVER

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THESIS

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By

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Aden E. Stiles

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In the area covered by this paper the uppermost Cretaceous is represented by the Navarro formation, and the lowermost Tertiary is represented by the Midway formation. Both of these formations, as well as the Wilcox above the Midway, are marked by ridges running at right angles to the main drainage, but parallel to the contacts. Although these ridges become less prominent toward the southwest, they aid materially in locating the respective formations. The Navarro-Midway contact follows one of these ridges. (See map)

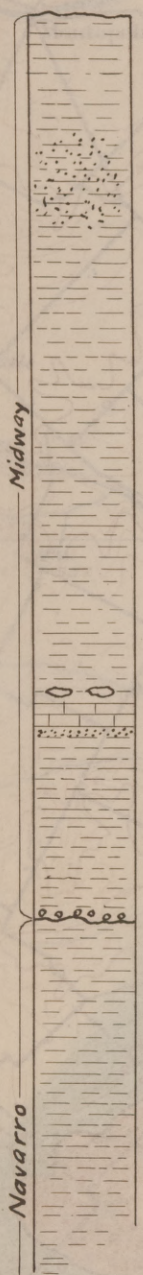
The best exposure of the Navarro in the area under discussion is the bluff on Onion Creek at the crossing of the Delvalle-Garfield road. At this bluff the formation consists of 100 feet of blue clay weathering yellow near the top. The Navarro carries much gypsum, is not so dense as the Midway, and may be identified by the presence of Exogyra costata Say, Cristellaria navarroensis Plummer, and Anomalina pseudopapillosa Carsey. There is no other good exposure of the Navarro between this point and the contact with the Midway five miles to the east.

At Elysium, on the Garfield-Bastrop highway, the Midway formation consists of 120 feet of yellow clay with some sandstone, limestone, and boulders. (See section) A sandstone and sandy limestone ledge 25 feet up in the Midway is useful in locating the contact of the formation with the Navarro. Venericardia bulla Dall and Ostrea crenulimarginata Gabb, characteristic Midway fossils, are present in the vicinity of this ledge, and the ledge is present throughout the mapped area. Cristellaria midwayensis Plummer is a good marker for the 25 feet of clay from the bottom of the formation to the sandstone ledge.

Both the Navarro and the Midway dip southeast at approximately 100 feet per mile.

The trend of the contact is northeast-southwest. At the contact an abundance of greensand and a conglomeratic layer containing well worn Cretaceous fossils indicate an unconformity.

SECTION OF THE MIDWAY AT ELYSIUM



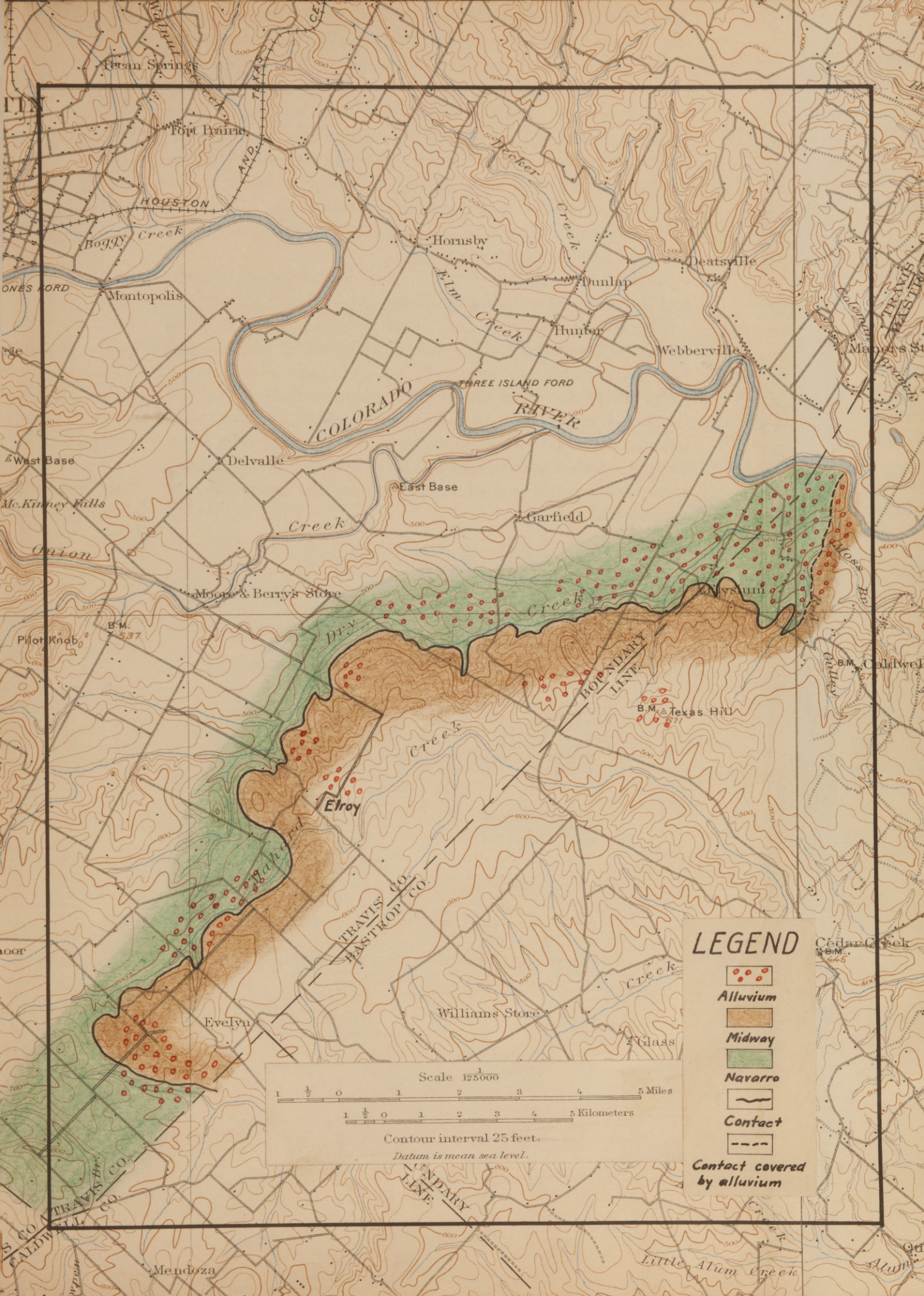
Yellow clay and sandy clay. Macroscopic fossils including Enclimatoceras vaughani Gardner.

Three-foot, gray limestone boulders weathering yellow. Sandstone and sandy limestone underlain by 4-inch layer of yellow sand. Venericardia bulla Dall, Ostrea crenulimarginata Gabb.

Dense yellow clay with iron stains; some gypsum in veins. Nodosaria affinis d'Orbigny visible to naked eye. Cristellaria midwayensis Plummer.

Exogyra costata Say, Cristellaria navarroensis Plummer, Anomalina pseudopapillosa Carsey.

Vertical scale: 1 inch = 25 feet


Pecan Springs
Ford Prairie
HOUSTON
Boggy Creek
Montopolis
Hornsby
Decker Creek
Dunlap
Elm Creek
Hunter
Webberville
THREE ISLAND FORD
COLORADO RIVER
West Base
Delvalle
East Base
Garfield
Creek
Onion
Moore & Berry's Store
Pilot Knob
B.M. 537
Dry Creek
BOUNDARY LINE
B.M. Texas Hill
Elroy
Blahard
TRAVIS CO.
HASTROP CO.
Evelyn
Williams Store
Glass
Cedar Creek
Mendoza
Little Alum Creek
LEGEND
Alluvium
Midway
Navarro
Contact
Contact covered by alluvium
Scale 1/125000
1 0 1 2 3 4 5 Miles
1 0 1 2 3 4 5 Kilometers
Contour interval 25 feet.
Datum is mean sea level.

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